

**Algebra 1 EOC (SSM)**

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**Instructions:**

- Read each of the questions below and decide on the best answer. Mark your answers on the bubble corresponding to the correct answer.

1. PS4LT1

For what values is  $\frac{1}{a}$  an integer?

- A.  $a = 1, 0$
- B.  $a \leq 1$
- C.  $a = 1, a \neq 0$
- D.  $a > 1$

2. PS4LT1

Evaluate  $2w + 6y^2$  for  $w = 4$  and  $y = 3$ .

- A. 330
- B. 62
- C. 60
- D. 44

3. PS5LT3

Simplify:  $\frac{2^{-2}3^25}{2^23^{-3}5^2}$

- A.  $\frac{3^5}{5^2}$
- B.  $2^43^55$
- C.  $\frac{3^5}{2^45}$
- D.  $\frac{3^2}{2^45}$

4. PS5LT4

Simplify:  $\sqrt{8}$

- A.  $\sqrt{2} \times \sqrt{4}$
- B.  $4\sqrt{2}$
- C.  $2\sqrt{2}$
- D.  $2 \times 2 \times 2$

5. PS5LT3

Simplify the expression using positive exponents.  $\left(\frac{x^2}{x^{-3}}\right)^4$

- A.  $x^3$
- B.  $x^5$
- C.  $x^{20}$
- D.  $x^4$

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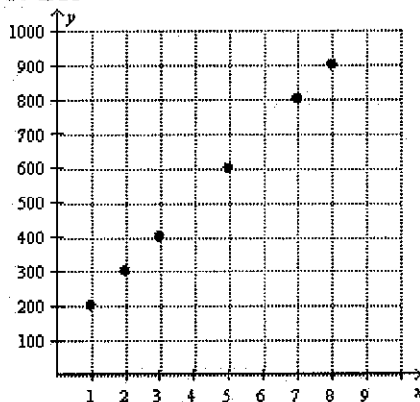
6. PS14 LT2  
Select the set of ordered pairs that represents an exponential function.

- A. (0,0) (-2,2) (1,1) (2,2)
- B. (4,6) (2,3) (6,8) (10,12)
- C. (1,1) (3,9) (2,4) (0,0)
- D. (0,0) (-1,2) (-2,3)(2,3)

7. PS7 LT1  
Which of the following situations represents a function?

- A. The age in years of each student in your math class and each student's shoe size.
- B. The number of degrees a person rotates a spigot and the volume of water that comes out of the spigot.
- C. Juan studied 2 hours for his math test and got an 85%. Sam studied 2 hours and got a 92%. Erin studied 3 hours and got a 0%. Jamie studied 1 hour and got a 70%.
- D. You do an experiment involving the height the tennis ball bounces. You drop the ball from the same height 3 times. You then repeat from five other heights and record the height the ball bounces, every time you get a different height.

8. PS7 LT5  
PS7 LT5

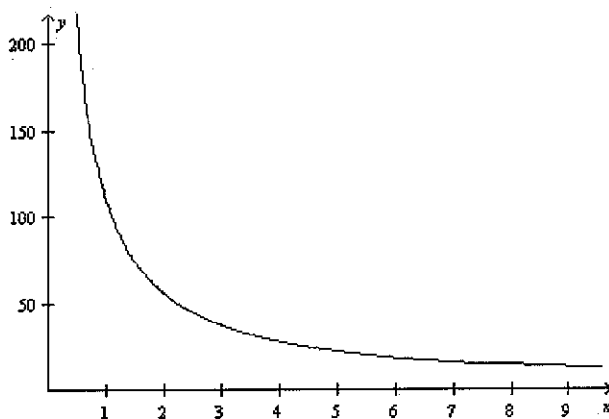


Number of cars sold	1	2	3	5	7	8
Total Salary	200	300	400	600	800	900

Which equation best represents total salary ( $T$ ) that an employee makes for selling any number of cars,  $c$  in a week?

- A.  $T(c) = 100c + 100$
- B.  $T(c) = 100c + 200$
- C.  $T(c) = 100(c + 20)$
- D.  $T(c) = c + 200$

## 9. PS7 LT5



Radius	2	4	7	8
Banking Angle	56°	28°	16°	14°

Which equation best represents the banking angle  $B$  for the turning radius  $r$ ?

- A.  $B(r) = 28r$
- B.  $B(r) = 2r - 28$
- C.  $B(r) = \sqrt{r + 3134}$
- D.  $B(r) = \frac{112}{r}$

## 10. PS8 LT2

For the function  $f(x) = \sqrt{x + 3}$ , find  $f(6)$ .

- A.  $\frac{1}{2}$
- B.  $\sqrt{6}$
- C. 3
- D. 9

## 11. PS8 LT3

For the function  $f(x) = 3x + 6$ , find  $x$  when  $f(x) = 0$

- A. -2
- B. 0
- C. 6
- D. 9

12. PS8 LT3

For the function  $f(x) = 9x - 17$ , find  $x$  when  $f(x) = 1$ 

- A. -17
- B. -8
- C. 1
- D. 2

13. PS8 LT3

For the function  $f(x) = 2x - 9$ , find  $x$  when  $f(x) = 3$ 

- A. -9
- B. -3
- C. 3
- D. 6

14. PS8 LT2

For the function  $f(x) = 3|x + 1|$ , find  $f(-5)$ .

- A. -12
- B. -2.4
- C. 12
- D. 18

15. PS8 LT2

For the function  $f(x) = 4x - 6$ , find  $f(-2)$ 

- A. -14
- B. -7
- C. -2
- D. 2

16. PS7 LT4

Which equation best represents the set of data in the table?

x	-2	-1	1	3	6
y	-4	-1	5	11	20

- A.  $y = 3x + 2$
- B.  $y = -3x + 2$
- C.  $y = x - 2$
- D.  $y = -x - 6$

17. PS7LT4

x	-2	0	1	2	3
f(x)	5	-3	-1	5	15

- A.  $f(x) = x - 3$   
 B.  $f(x) = x + 7$   
 C.  $f(x) = 2x^2 - 3$   
 D.  $f(x) = \sqrt{x + 27}$

18. PS7LT4

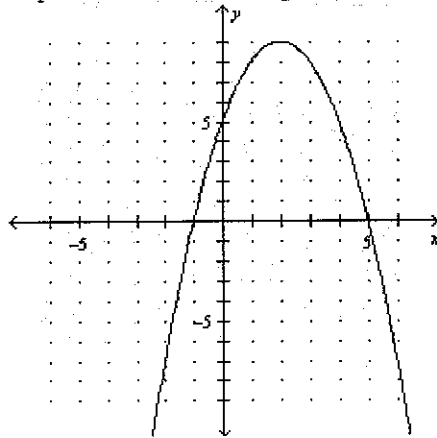
Which equation best represents the set of data in the table?

x	-3	-1	2	3	5
y	-8	-4	2	4	8

- A.  $x - y = 2$   
 B.  $2x - y = 2$   
 C.  $x + y = -2$   
 D.  $x + 2y = -2$

19. PS14LT5

A quadratic function is represented by the given graph.



Which values represent the zeros of the function?

- A.  $x = -5$  or  $x = 1$   
 B.  $x = -1$  or  $x = 5$   
 C.  $x = 0$  or  $x = 5$   
 D.  $x = 2$  or  $x = 9$

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20. PS2 LT2 - Solve the inequality and choose the correct answer:

$$x + 5 \geq 8$$

- A.  $x \geq -3$
- B.  $x \geq 3$
- C.  $x \geq 11$
- D.  $x \geq 3$

21. PS2LT5

George has eight more than twice the number of marbles you have. Write an inequality for the number of marbles George has.

- A.  $8 - 2n$
- B.  $2n - 8$
- C.  $8 + (-2n)$
- D.  $2n + 8$

22. PS2 LT1

Solve for  $x$ :  $2(x-3) + 4x = 14 + 2x$

- A. 2
- B. 5
- C. 4
- D. 6

23. PS9 LT3

Which equation represents the line that passes through the points (2,2) and (4,1)

- A.  $y = -2 + 6$
- B.  $y = -\frac{1}{2}x + 3$
- C.  $y = \frac{1}{2}x + 1$
- D.  $y = 2x - 2$

24. PS9 LT3

Find an equation for a line that passes through the points (1,8) and (-2,-1)

- A.  $y = 3x + 5$
- B.  $y = -3x - 5$
- C.  $y = \frac{1}{3}x + 7\frac{2}{3}$
- D.  $y = -\frac{1}{3}x - 7\frac{2}{3}$

25. PS11 LT2

Use the equation  $y = 2x + 3$  (without sketching the graph) to describe the graph.

- A. The graph has a negative slope and y-intercept of -2.
- B. The graph has a negative slope and y-intercept of 3.
- C. The graph has a positive slope and y-intercept of -2.
- D. The graph has a positive slope and y-intercept of 3.

26. PS9 LT5

Write the equation  $y = \frac{1}{2}x + 5$  in standard form.

- A.  $-x + 2y = 10$
- B.  $x - 2y = -10$
- C.  $y - \frac{1}{2}x = 5$
- D.  $y - \frac{1}{2}x = 10$

27. PS9 LT5

Write the equation  $y - 1 = 2(x - 2)$  in standard form.

- A.  $2x + y = -3$
- B.  $-2x + y = 3$
- C.  $2x - y = 3$
- D.  $y = 2x - 3$

28. PS10 LT4

Mary is going to deposit an equal amount of money into a checking account each month until she has saved \$500.

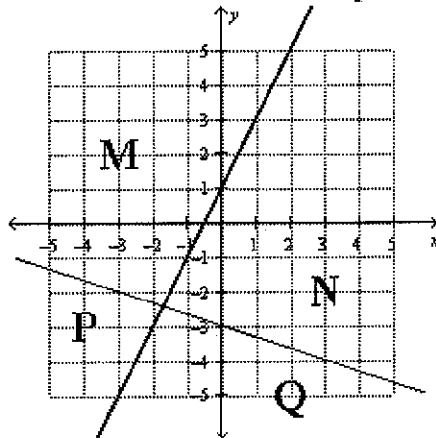
The amount of money,  $y$ , in the account after  $x$  months can be modeled by the equation  $y = 25x + 100$ .

What does the slope of the graph of the equation represent?

- A. The amount of money deposited monthly.
- B. The amount of money originally in the account.
- C. The number of months it would take to earn \$100.
- D. The number of months it would take to reach \$500.

29. PS3 LT4

Two lines divide the coordinate plane into the four lettered regions shown.



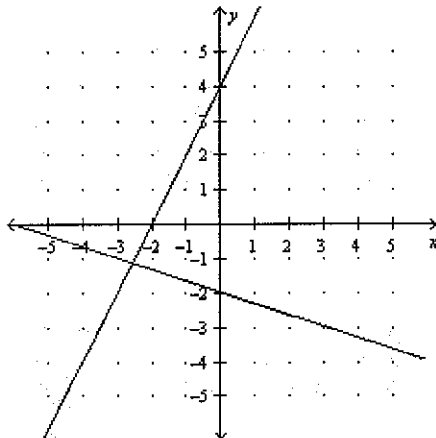
$$\begin{cases} y \geq 2x + 1 \\ y \leq -\frac{1}{3}x - 3 \end{cases}$$

Which region represents the solution set for the system of inequalities given?

- A. Region M
- B. Region N
- C. Region P
- D. Region Q

30. PS3 LT3

What is the solution to the simultaneous linear system pictured?



- A. (0,4)
- B. (-2,0)
- C. (-3,-1)
- D. (-2,0)



31. PS3 LT3

Solve the following simultaneous linear equations algebraically.

$$-2x + y = 2$$

$$x + y = -1$$

A.  $(-1, -2)$

B.  $\left(-\frac{1}{3}, -\frac{1}{4}\right)$

C.  $(0, -1)$

D.  $(-1, 0)$

32. PS3 LT5

An academic team is going to a state mathematics competition. There are 30 people going on the trip. There are 5 people who can drive and 2 types of vehicles: vans and cars. A van seats 8 people, and a car seats 4 people, including drivers. Let  $v$  = the number of vans and  $c$  = the number of cars.

$$v + c \leq 5$$

$$8v + 4c \geq 30$$

How many vans and cars does the team need for the trip?

A. 3 cars and 3 vans

B. 3 vans and 2 cars

C. 3 cars and 2 vans

D. 3 vans and 1 car

33. PS11 LT3

Which statement best describes the transformation of the graph of  $y = |x|$  to the graph of  $y = |x + 2|$ ?

A. The graph shifts up 2 units

B. The graph shifts down 2 units.

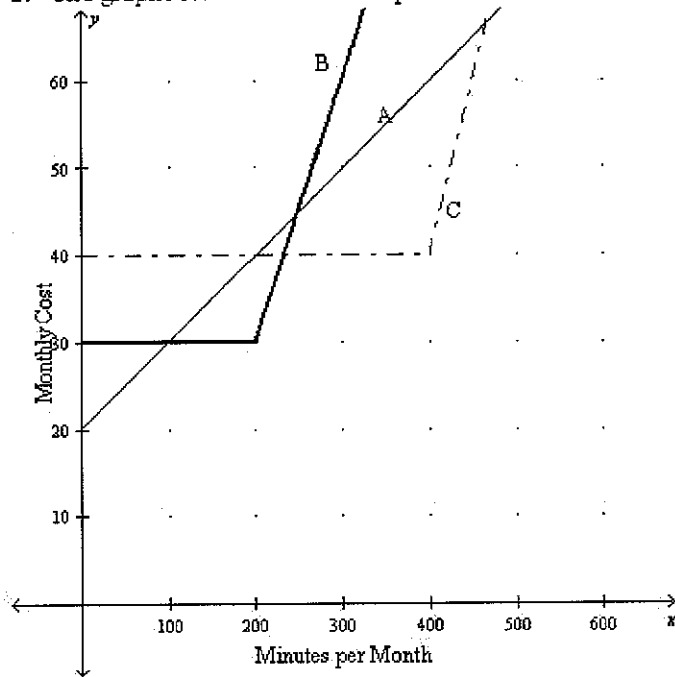
C. The graph shifts left 2 units

D. The graph shifts right 2 units

Read the following passage to answer questions 34.1 - 34.4

### Cell phones

Refer to the graph below to answer the following questions about three different cell phone plans: A, B and C. The graphs relate total minutes per month used for each cell phone plan and monthly cost in dollars.



34.1. PS10 LT5

What can be said about the initial cost of each cell phone plan?

- A. All the plans begin with the same cost.
- B. Plan A costs the most.
- C. Plan B costs the most.
- D. Plan C costs the most.

34.2. PS3 LT5

Which plan costs the least if you have 200 minutes of cell phone use in the month?

- A. Plan A
- B. Plan B
- C. Plan C
- D. Cannot be determined

34.3. PS3 LT5

What is the least number of minutes you can use and have Plan A and Plan B cost the same?

- A. 100
- B. 150
- C. 200
- D. 250

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34.4. Which of the following could be the equation for calculating the cost of Plan A?

- A.  $y = x + 20$
- B.  $y = .1x + 20$
- C.  $y = 20x + 10$
- D.  $y = 20x + .1$

Read the following passage to answer questions 35.1 - 35.2

Read the following problem.

A gas station's 10,000-gallon underground storage tank contains 1,000 gallons of gasoline. Tanker trucks pump gasoline into the tank at a rate of 400 gallons per minute.

35.1. PS7 LT5

Find a function that represents this situation.

- A.  $y = 400x + 10,000$
- B.  $y = 400x + 1,000$
- C.  $y = -400x + 10,000$
- D.  $y = -400x + 9000$

35.2. PS11 LT2

If the flow rate changes from 400 to 500 gallons per minute, how will the graph of the function change?

- A. The y-intercept will increase.
- B. The y-intercept will decrease.
- C. The slope will decrease.
- D. The slope will increase.

36. PS1 LT3

What is an appropriate domain for this situation?

- A. All real numbers
- B.  $0 \leq x \leq 9000$
- C.  $0 \leq x \leq 22.5$
- D.  $0 \leq x \leq 25$

37. PS11 LT3

Function A:  $y = 3|x|$       Function B:  $y = -\frac{1}{3}|x|$

What can be said about the above functions?

- A. Functions A and B reflect exactly across the x-axis
- B. Functions A and B reflect exactly across the y-axis.
- C. The functions do not reflect.
- D. The functions cannot be graphed.

38. PS11 LT 3

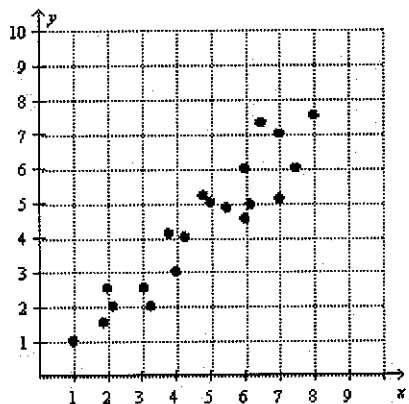
Function A:  $y = 3|x|$       Function B:  $y = -\frac{1}{3}|x|$

Which function has a greater rate of change?

- A. Function A
- B. Function B
- C. Neither
- D. It cannot be determined with the information given.

39. PS13 LT1

Which statement describes the correlation of the data graphed in the scatterplot?



- A. strong negative
- B. strong positive
- C. weak negative
- D. weak positive

40. PS9 LT5

Write the equation  $3x + 2y = 5$  in slope-intercept form.

41. PS10 LT3

Write the slope-intercept equation of the line parallel to  $y = 2x + 1$  that passes through the point (2,2)

42. PS10 LT3

Write the slope-intercept equation of the line perpendicular to  $y = 3x - 1$  that passes through the point (3,2)